
M. Tangherlini (1), D. Bacciola (2), M. Borghini (2), G. Cerrati (1), R. Delfanti (1), V. Difesca (1), G. Gasparini (2), S. Salvi (3), C. Papucci (1), and M. Ribera d’Alcalà (4)

(1) ENEA Centro Ricerche Ambiente Marino, P.O. Box 224, 19100 La Spezia, Italy. (2) CNR – Istituto per l’Oceanografia Fisica, Forte di S.Teresa, 19036 Pozzuolo di Lerici, Italy. (3) ENEA Centro Ricerche Brasiamone, 40032 Camugnano, Italy. (4) Laboratorio di Oceanografia Biologica, Stazione Zoologica Anton Dohrn, Villa Comunale, 80121 Napoli, Italy (papucci@santateresa.enea.it)

Straits in the Mediterranean Sea are key areas for the characterisation of the water exchange between sub-basins. The physical properties of the water masses flowing through the Sicily Strait have been monitored since 1993 and the data analysis elucidated the seasonal and interannual variability of the fluxes and the changes in the water mass characteristics induced by the Eastern Mediterranean Transient. More recently, the monitoring at the Sicily Strait was extended to the concentration of nutrients and conservative tracers (in particular $^{137}$Cs) to identify the chemical signature of the waters leaving the Eastern Mediterranean, its modification along the pathway through the Channel and the characteristics of the water masses finally entering the Western Mediterranean.

We present here the results of two oceanographic campaigns conducted in November 1999 and in October 2001, and in particular the distribution of nitrates, and silicates along two transects, crossing the Eastern and the Western border of the Sicily Strait and discuss it together with the physical properties of the water masses. The vertical profiles of $^{137}$Cs have also been determined at a few stations, collecting samples representative of the different water masses.

Maximum nutrient concentrations characterise the transitional Eastern Mediterranean Deep Water (tEMDW). The mean concentrations were around 6 and 6.5 mmol kg$^{-1}$
for nitrates and silicates respectively, and there were not significant differences between the Eastern and the Western border of the strait. Slightly lower where the mean concentrations of both nitrate and silicates in the Levantine Intermediate Water (LIW), where the range of the levels was considerably larger. An inverse trend was shown by the conservative radionuclide $^{137}$Cs whose vertical profiles in the strait and in the adjacent Ionian Sea show maximum levels around 3 Bq m$^{-3}$ in the upper layer (Modified Atlantic Water, MAW and LIW) and a minimum of about 1.5 Bq m$^{-3}$ in the tEMDW.